

RED KNOT (*Calidris canutus rufa*) MONITORING AT
CAPE LOOKOUT NATIONAL SEASHORE

2013 SUMMARY REPORT



USFWS Photo

NATIONAL PARK SERVICE
CAPE LOOKOUT NATIONAL SEASHORE
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HARKERS ISLAND, NC 28531

Introduction

Serious declines in the population of red knots (*Calidrus canutus rufa*) led to several petitions to the U.S. Fish and Wildlife Service (USFWS) for protection under the Endangered Species Act. In September 2006 the red knot was designated as a candidate for Endangered Species Act protection (Federal Register, 2006). In September 2013 the USFWS proposed threatened listing status for red knots. Red knots use the Outer Banks of North Carolina as a stopover site in spring and fall migration. While not as important as some other coastal sites, the Outer Banks may still contribute to the survival of this species.

Previous monitoring of red knots at Cape Lookout National Seashore (CALO) was limited to surveys as part of a broader shorebird study in 1992 and 1993. North Core Banks had greater numbers of red knots than other areas in the Outer Banks (Dinsmore et al, 1998) but surveys in that study did not include any of the areas south of New Drum Inlet.

This report contains a summary of monitoring results for 2013 and comparisons to results from the earlier study and discussion of long-term monitoring of red knots at CALO.

Methods

Surveys for red knots were made of the entire ocean beach and inlet areas on North Core Banks (NCB) and South Core Banks (SCB) beginning in mid-March. The area between Old Drum Inlet and Ophelia Inlet was not monitored in 2013.

Our survey frequency and timing followed the International Shorebird Census guidelines for spring and fall. Counts were done near the 5th, 15th, and 25th of the month from March 15th to June 5th and from July 15th to October 15th.

Surveys were conducted by the park biologist or biological science technicians with experience identifying shorebirds. Surveys were at different times of day, tides and weather conditions. Monitors recorded the number of red knots observed, the mile location, the latitude and longitude, the amount of human disturbance, tide level and the accuracy of the count (See Appendix 1).

Results

Most of the red knots counted during our surveys were found on NCB with an average of 221 birds per count. SCB averaged 71 birds per count. NCB had the highest count of 854 birds on May 25. SCB highest count of 374 birds was on May 15. The peak numbers for the core banks were during spring migration with 1111 birds counted on the May 25 census. The spring migration from 15 March to 5 June averaged 471 birds. There was also a small peak in late July and August when fall migrants moved back through (Figure 1). The fall migration from 15 July to 25 October averaged 152 birds. Additional counts outside of the methodology yielded 218 birds on February 12th on NCB

and 198 birds on December 13th. Red knots were distributed over the length of the core banks (Figure 2 & 3). There were 32 banded birds re-sighted in the seashore, Appendix 2. The band re-sights were reported to www.report.bandedbirds.org

Discussion

Our monitoring confirmed the importance of the seashore as a stopover site for red knots, particularly during spring migration. The relative abundance of red knots on North Core Banks during peak spring migration was 29 birds/ kilometer compared to 34 birds/ kilometer in 1992-1993, Table 1 (Dinsmore et al, 1998). Relative abundance has fluctuated for this migratory species from a low of 14 in 2009 to a high of 46 in 2012. Peak counts during spring migration ranged from April 15 to May 25. NCB has averaged more birds overall and had the highest peak counts. Monitoring data from 2006 to 2013 reveals the highest counts consistently occurred from Ocracoke Inlet to mile 6 on NCB and from Ophelia Inlet to mile 28 on SCB. Figure 4 illustrates the counts by mile section for the last 8 years of monitoring and Appendix 3 contains this data. Although the Outer Banks may not be as important as some other sites in the region, the area still provides habitat that may be important for the recovery and long-term survival of red knots.

Table 1. Red knot relative abundance on North Core Banks, 1992-2013.

Year	Date	Peak Count	Kilometers	Relative Abundance
1992-1993			34	34
2006	5-May	618	30.3	20
2007	15-May	718	30.6	23
2008	15-Apr	1287	30.6	42
2009	25-May	525	36	14
2010	15-May	927	36	26
2011	15-May	648*	36	18
2012	25-April	1370	29.8	46
2013	25-May	854	29.8	29

*The year 2011 peak count was corrected from previous reports.

Literature Cited

Dinsmore, S.J., J.A. Collazo, and J.R. Walters. 1998. Seasonal numbers and distribution of shorebirds on North Carolina's Outer Banks. *Wilson Bulletin* 110:171-182.

Figure 1. Number of Red Knots Counted at Cape Lookout National Seashore in 2013.

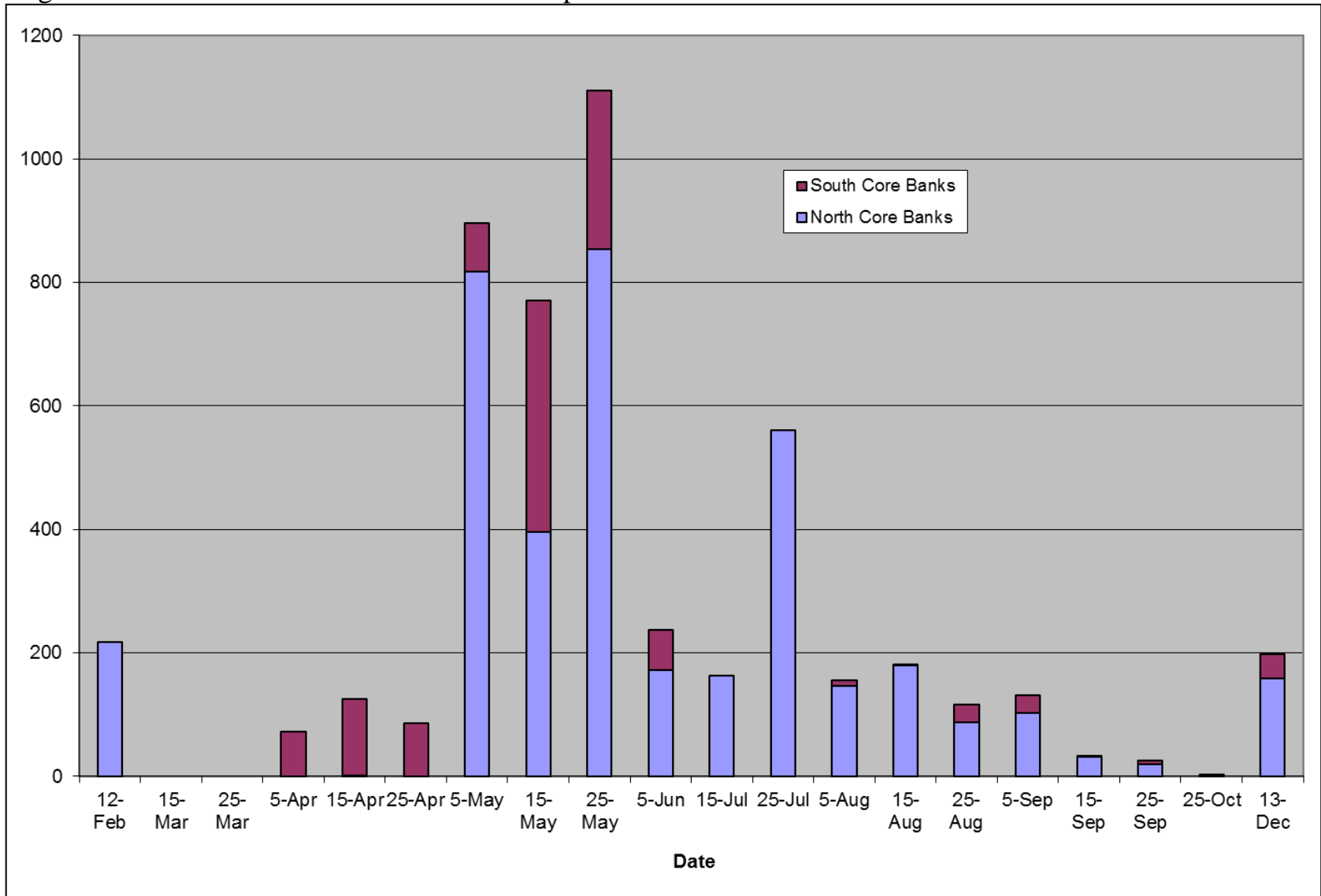


Figure 2. Geographic Distribution of Red Knots Counted on North Core Banks with Total Counts per Mile Section (# 501) in 2013.

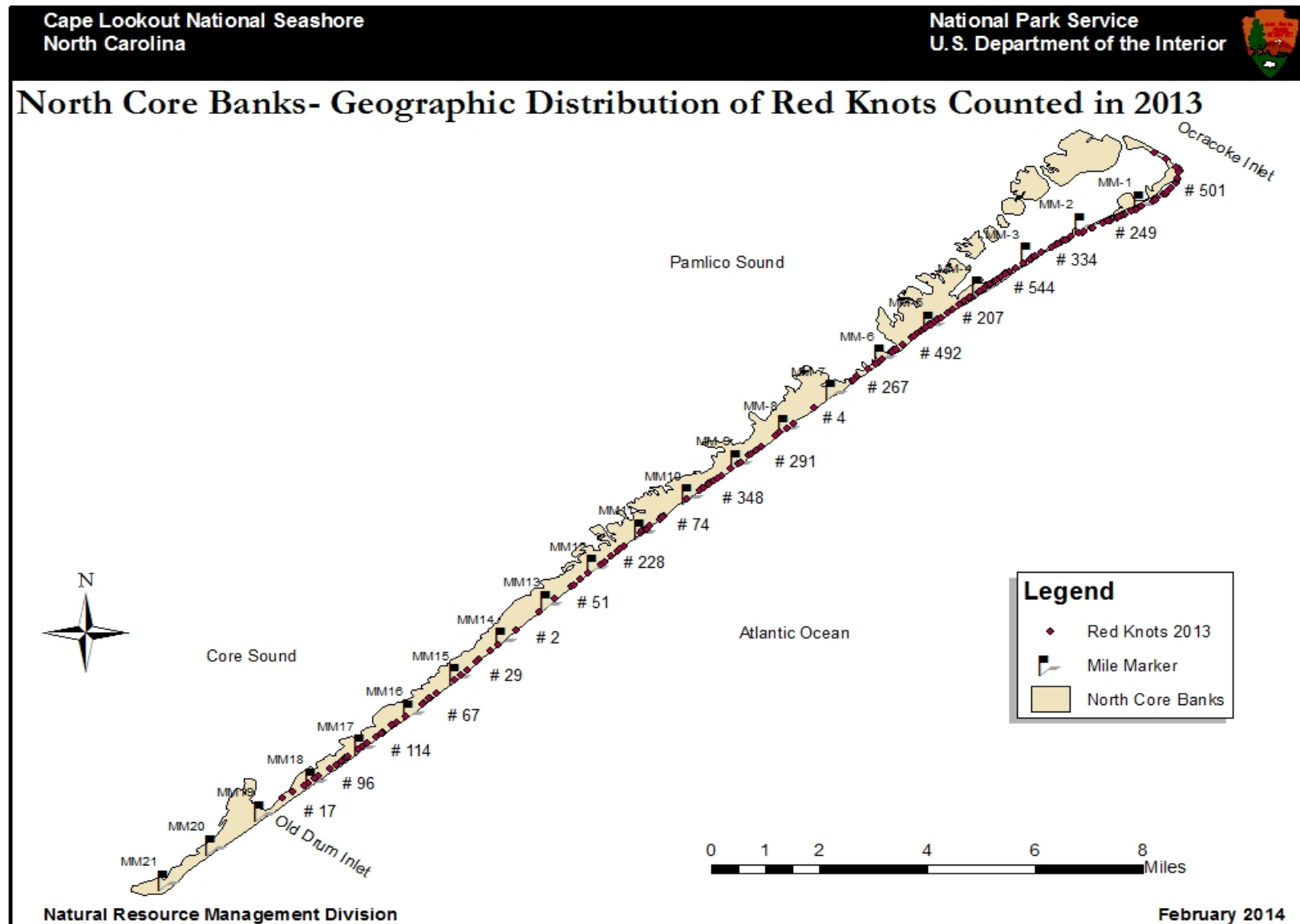


Figure 3. Geographic Distribution of Red Knots Counted on South Core Banks with Total Counts per Mile Section (# 15) in 2013.

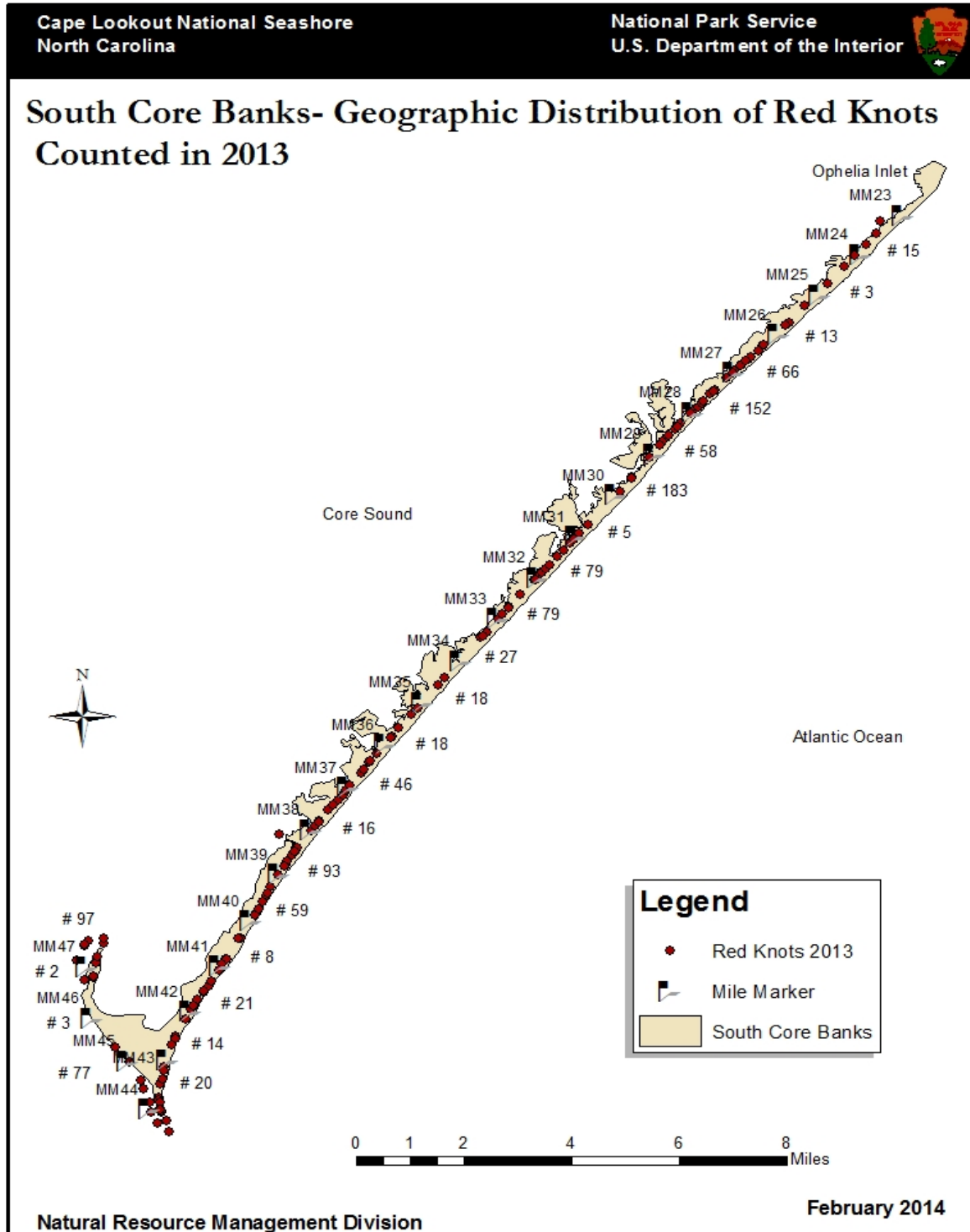
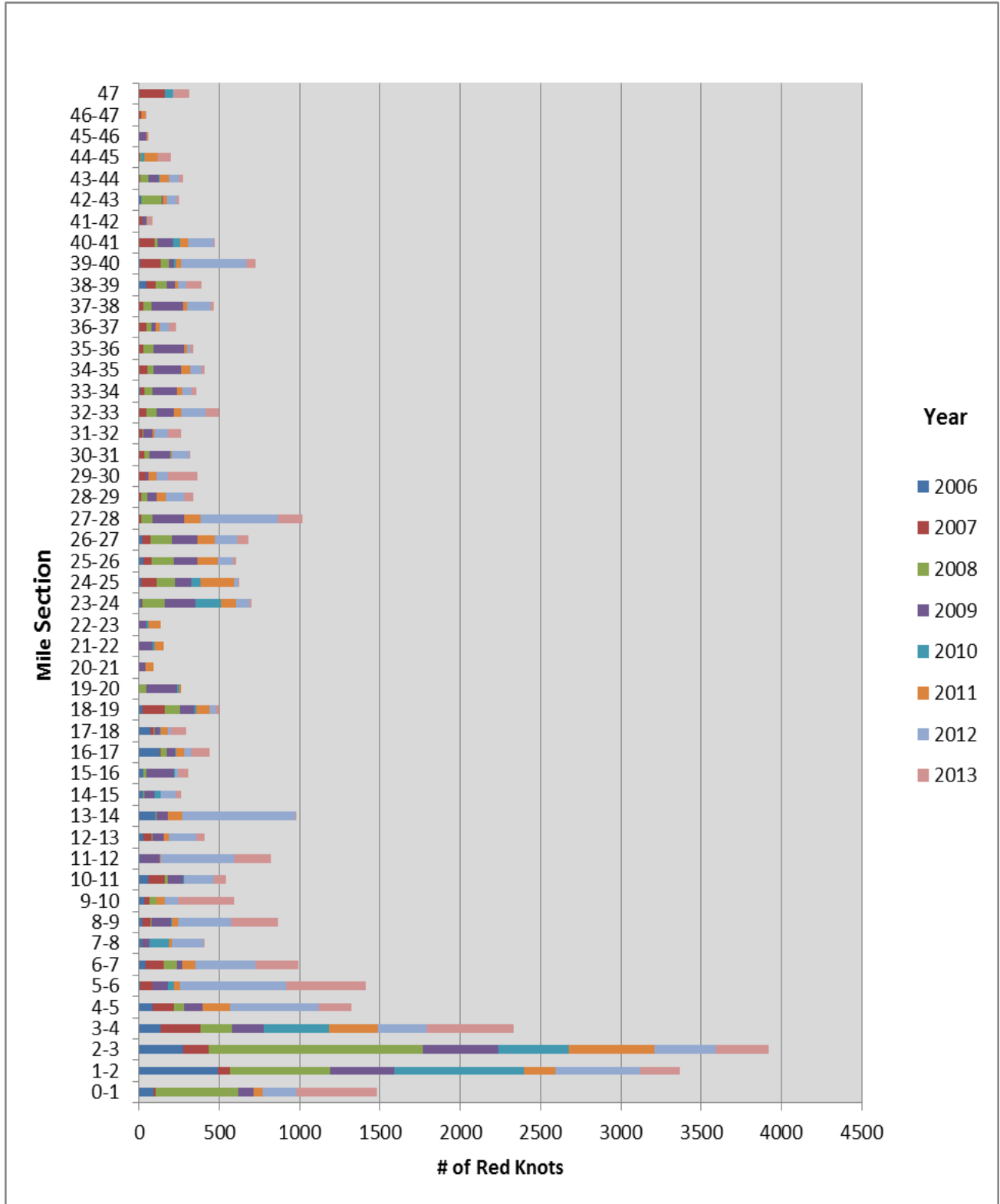


Figure 4. The Number of Red Knots by Mile Section from 2006 to 2013.



Appendix 1

**RED KNOT (*Calidris canutus*) SURVEY DATA SHEET
Cape Lookout National Seashore**

Name of Observer: _____

Date _____ Island _____ Start Time _____ End Time _____

# of REKN	Mile	Latitude (decimal degrees)	Longitude (decimal degrees)	Human Disturbance	Tide	Accuracy

Human disturbance: During this census, shorebirds were:
 A=undisturbed, B=disturbed 1-2 times, C=3-4 times, D=5-10 times, E=>10 times, X= unknown

TIDE (coastal sites): 1=high, 2=near high/RISING, 3=near high/ FALLING, 4=half/RISING,5=half/FALLING,
 6=near low/RISING, 7=near low/FALLING, 8=LOW, 9=unknown.

ACCURACY: Please indicate in each block whether your count is:
 * a true count, ** an extrapolated estimate, or circle a "guatestimate"

Appendix 2. 2013 Red Knot Band Re-Sight Data.

Month	Day	Observer	Island	#REKN	Mile	Latitude	Longitude	Disturb.	Tide	Ac.	Comments (Bands)
5	26	FH	SCB	50	29.92	34.76083	-76.40966	A	4	*	orange T6N
5	26	FH	SCB	81	29.61	34.76457	-76.40646	A	4	*	orange V3V
5	26	FH	SCB	10	25.73	34.80864	-76.36411	A	4	*	orange P6N
5	5	EL	NCB	43	16.45	34.90352	-76.24895	A	7	*	UL-Green flag(blank/worn off)/UR-Orange band, UL-Green flag (7L7), UL-Green flag (P4J), UL-Green flag (J45), UL-Blue band/UR-Green flag (MB3)
5	5	EL	NCB	91	8.87	34.98006	-76.15304	A	7	*	UL-Green flag(blank/worn off)/UR-yellow transmitter, UL-Green flag (2PA)
5	5	EL	NCB	3	7.94	34.98927	-76.14101	A	8	*	UL-Green flag(blank/worn off)
5	5	EL	NCB	124	5.84	35.01007	-76.11405	A	8	*	UL-Green flag (4KY), UL-Green flag (116)
5	5	EL	NCB	307	3.94	35.02843	-76.08907	B	8	*	UL-Green flag (7EE)
5	16	EL/ND	NCB	74	2.00	35.04688	-76.05589	A	2	*	UL - White flag (BYL), UL - Orange Flag (AKM), UL - Green flag (blank) UR - White Band
5	16	EL/ND	NCB	81	1.80	35.04786	-76.05396	B	2	*	UL - Green Flag (ITU)
5	16	EL/ND	NCB	80	0.68	35.05429	-76.04154	B	2	*	UL - Green Flag (S3P), UL - Green Flag (BLT), UL - Yellow Flag (?) UR - Orange Band, UL - Green Flag (225) LR - Metal Band, UL - Green Flag (NEB) UR - Light Green Band
5	25	EL	NCB	92	11.06	34.95874	-76.18169	A	3	*	UL - Red Flag (Blank) x 2
6	5	ND	NCB	19	3.90	35.02853	-76.08832	A	4	*	UL Blue band/ UR Orange flag (U6Y)
6	5	ND	NCB	12	2.13	35.04341	-76.06336	B	4	*	UL Orange flag (faded code)
7	25	DC	NCB	83	4.64	35.02160	-76.09816	A	7	*	UL Blue, unable to read
8	15	ND	NCB	21	3.58	35.03175	-76.08414	B	4	*	UL - light green (PE9), LR - metal band
8	15	ND	NCB	18	2.48	35.04111	-76.06844	A	2	*	UL - light green (faded), LR - metal band
9	5	ND	NCB	2	2.12	35.04361	-76.06314	A	5	*	UL - pale green flag (1VN), LR - metal band
9	5	ND	NCB	4	17.02	34.89738	-76.25700	A	7	*	UL - olive green or grey flag (627)
12	16	JA	NCB	7	2.70	35.03927	-76.07163	A	7	*	UL- GF215, LR-X

Appendix 3. Red Knot Count Data from 2006 to 2013 by Mile Section.

	2006	2007	2008	2009	2010	2011	2012	2013	Sum	Average
0-1	89	14	515	93	3	53	211	501	1479	185
1-2	491	78	618	404	804	196	526	249	3366	421
2-3	273	160	1333	473	437	530	383	334	3923	490
3-4	136	246	196	197	405	307	303	544	2334	292
4-5	87	132	61	115	1	169	552	207	1324	166
5-6	8	79	0	92	41	33	666	492	1411	176
6-7	40	116	83	31	0	81	376	267	994	124
7-8	26	6	0	33	121	20	197	4	407	51
8-9	18	54	4	123	5	41	328	295	868	109
9-10	36	26	47	2	0	48	87	348	594	74
10-11	57	102	20	98	3	0	186	74	540	68
11-12	7	0	0	119	0	6	463	228	823	103
12-13	24	56	5	66	0	35	174	51	411	51
13-14	100	0	11	69	0	89	705	2	976	122
14-15	29	0	4	64	35	6	94	29	261	33
15-16	29	0	19	172	1	0	20	67	308	39
16-17	126	10	35	50	6	56	42	114	439	55
17-18	72	20	2	33	7	47	18	96	295	37
18-19	21	139	98	89	8	84	39	17	495	62
19-20			49	190	9	15			263	66
20-21				38	0	53			91	30
21-22				81	14	59			154	51
22-23				45	16	77			138	46
23-24	17	6	137	192	155	101	78	15	701	88
24-25	15	96	112	103	58	211	23	3	621	78
25-26	30	45	144	142	0	129	99	13	602	75
26-27	21	53	128	163	0	109	140	66	680	85
27-28	0	15	68	200	0	99	481	152	1015	127
28-29	0	14	41	52	0	61	114	58	340	43
29-30	0	40	2	14	0	52	71	183	362	45
30-31	0	32	30	128	7	9	105	5	316	40
31-32	0	20	10	51	0	16	84	79	260	33

32-33	0	45	63	109	0	42	158	79	496	62
33-34	5	29	51	150	0	36	57	27	355	44
34-35	0	50	39	172	0	57	72	18	408	51
35-36	4	25	64	187	0	19	19	18	336	42
36-37	0	44	36	26	0	23	54	46	229	29
37-38	0	25	55	195	0	22	150	16	463	58
38-39	47	59	68	47	0	22	51	93	387	48
39-40	11	122	55	31	12	31	407	59	728	91
40-41	0	94	23	96	42	52	157	8	472	59
41-42	0	19	0	26	0	8	8	21	82	10
42-43	14	0	127	8	0	23	65	14	251	31
43-44	0	9	48	65	4	61	65	20	272	34
44-45	0	5	10	0	20	82	2	77	196	25
45-46	0	0	0	48	0	4	3	3	58	7
46-47	0	14	1	0	0	24	1	2	42	5
47	0	158	0	4	48		7	97	314	45